



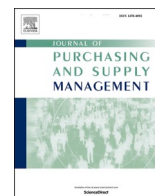
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How and when do purchasers successfully contribute to the implementation of circular purchasing: A comparative case-study

Petra C.M. Neessen^{a,*}, Marjolein C.J. Caniëls^a, Bart Vos^b, Jeroen P. de Jong^c

^a Faculty of Management Sciences, Open University of the Netherlands, PO Box 2960, 6401 DL, Heerlen, the Netherlands

^b Brightlands Institute for Supply Chain Innovation (BISCI), School of Business and Economics, Maastricht University, PO Box 616, 6200 MD, Maastricht, the Netherlands

^c Radboud University, School of Management, Institute for Management Research, PO Box 9108, 6500 HK, Nijmegen, the Netherlands

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ABSTRACT

The transition towards a circular economy puts pressure on organizations to purchase in a circular manner. The aim of this research is to investigate the role, behaviors, and characteristics of purchasers in the circular purchasing process, and the contextual factors that influence circular purchasing. To address this aim, we interviewed purchasers, supervisors and policy makers of seven Dutch organizations. The results of the comparative case-study show that the main roles of the purchaser are those of coordinator, facilitator and advisor, and that the successful circular purchaser can best be described as intrapreneurial, sustainability-minded and knowledgeable about the circular economy. Purchasers are successful in implementing circular purchasing when they share responsibility with budget holders and when they are part of organizations that have processes in place to ensure the inclusion of circularity in their purchasing projects. The drivers that influence the success of circular purchasing can be described as creating a sense of direction and grasping the complexity of the circular economy. Furthermore, the market, organizational, legal, conceptual and cultural constraints that limit the success of circular purchasing were identified.

1. Introduction

The circular economy has become an increasingly prominent part of national sustainability agenda's (Rijksoverheid, 2016). For example, the Netherlands strives to be 100% circular by 2050 (Rijksoverheid, 2016). In a circular economy, *"the value of products and materials is maintained for as long as possible; waste and resource use are minimized, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value"* (EC, 2015 p.1). Within a circular economy, waste is reduced and seen as input for other products or chains. Technical nutrients can be continuously reused, refurbished, remanufactured or recycled, while maintaining their quality, and biological nutrients can return to nature to restore the natural supplies (De Angelis et al., 2018).

However, the transition path from a traditional economy towards a circular economy is one with many hurdles (Ghisellini et al., 2016). The main challenge associated with implementing a circular supply chain is that the materials should circulate for a long period of time (De Angelis

et al., 2018). In circular supply chains, value is created by the flow of materials not just within one chain, but across chains (De Angelis et al., 2018). For example, after initial use, a product may function as a second hand product, after which its materials may be utilized for the construction of new products, and later as raw materials for a different product category. This results in a need for high flexibility across sectors and organizations as well as flexible manufacturing in which materials still can be utilized after initial use (Genovese et al., 2017). Purchasing in a circular economy implies seeking to purchase work, goods or services that close the energy and material loops within the supply chain and minimize or eliminate waste (European Commission, 2017; Sönnichsen and Clement, 2020). Circular purchasing and sustainable purchasing both increase the level of complexity of purchasing. Yet, sustainable purchasing is related to creating value for society, economy and the environment, which could include minimizing material use. In contrast, circular purchasing is more related to closing the material loop and minimizing waste, by for instance reducing, recycling and reusing materials (European Commission, 2017; Sönnichsen and Clement, 2020;

* Corresponding author.

E-mail addresses: petra.neessen@ou.nl (P.C.M. Neessen), marjolein.caniels@ou.nl (M.C.J. Caniëls), b.vos@maastrichtuniversity.nl (B. Vos), j.dejong@fm.ru.nl (J.P. de Jong).

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UNEP, 2013). Circular purchasing is therefore more narrowly defined than sustainable purchasing.

Many organizations are struggling to find ways to transit to circular purchasing. One way to stimulate circular purchasing is to participate in a Green Deal Circular Purchasing (GDCL, n.d.). In the Dutch Green Deal, organizations commit themselves to start at least two circular purchasing projects. Via communities of practice they exchange experiences and help each other to overcome hurdles (GDCL, n.d.). As demonstrated by joining the Dutch Green Deal in our research, intention to implement circular purchasing signals a certain level of organizational support toward the a circular economy. Research has shown that organizational support or management support is one of the factors that could positively influence employees, in this case purchasers (Hornsby et al., 2002). It increases intrapreneurship and subsequently the sustainable performance of the organization (Marvel et al., 2007). In practice the results of the Green Deal Circular Purchasing were divers. Some organizations were able to successfully implement circular purchasing, while others did not. This raises the question about what makes certain organizations successful in implementing circular purchasing. The results of the Green Deal Circular Purchasing implies that intention of the participating organizations may not be sufficient to drive a transition towards circular purchasing. We argue that the role of the individual purchasers may be just as important.

The role of the purchaser is critical in the transition towards a circular economy (Bals et al., 2018; Ghisellini et al., 2016). Purchasing is the linking pin between suppliers and the production- or service-processes of the organization. Several factors make the transition towards circular purchasing challenging: the complexity of the organization, the multiple stakeholders that are involved in the purchasing process, the flexibility required to work together in networks, and the innovation needed to create to new circular products (De Angelis et al., 2018; Genovese et al., 2017). Circular purchasing activities are not standard activities for purchasers. For example, standard procedures may not be effective for circular purchasing, new alliances may need to be formed, and internal resources may need to be utilized. In line with extant research, we argue that in a circular economy, purchasers need to have an entrepreneurial skill set, i.e. they need to become intrapreneurial (Giunipero et al., 2005). Research has identified several characteristics that become more relevant to purchasers when they have to deal with sustainability issues (Faes et al., 2001; Schulze et al., 2019). These characteristics and competences include aspects of intrapreneurship, for example, taking initiatives and exploring the market. Previous research indicates that employees acting as change agents increase the level of sustainable purchasing by advising and facilitating project teams oriented at sustainable purchasing (Grandia, 2015). Therefore, we use the framework of intrapreneurship (Neessen et al., 2019) as a theoretical lens to analyze how purchasers can successfully implement circular purchasing.

The research questions of this exploratory study are: 1) what are the roles, behaviors and characteristics of the purchasing professional in successful implementation of circular purchasing, and 2) what contextual factors determine the extent to which purchasers impact the perceived success of the implementation of circular purchasing activities? On the basis of a comparative case-study-design, we will develop propositions that encapsulate the complexity of the transition towards circular purchasing.

The main scientific contributions of this study are as follows. Previous research on the drivers of and barriers to sustainable purchasing and circular purchasing has mostly adopted an organizational perspective (Appolloni et al., 2014; Blome et al., 2013; Giunipero et al., 2012; Large et al., 2013; Walker et al., 2008). In contrast, our study focuses on the factors influencing the individual purchaser. Purchasers are the key agents in the circular purchasing process (Bals et al., 2018; Ghisellini et al., 2016) who experience unique challenges. This research will first of all increase our knowledge about the role of individual purchasers and second of all increase our knowledge about the contextual factors that

influence the transition towards circular purchasing.

2. Theoretical framework

2.1. Role of the purchaser in the circular economy

The human side of the transition towards a circular economy is still under-researched. Most research is focused on the technology developments related to circular economy (Jabbour et al., 2019). However there are some researchers that suggest that certain green human research practices can increase the sustainable performance of organizations. It can increase the employees' motivation to become part of environmental projects (Renwick et al., 2012). The importance of individual employees in the transition towards a circular economy is recognized by other researchers as evidenced by research on for instance employee awareness and organizational citizenship behavior (Singh and Singh, 2019; Veleva et al., 2017). Employees can have the role of ambassadors and are able to identify and implement circular initiatives. However they need to feel engaged in order to be an ambassadors. Employee engagement and empowerment is found to be related to circular initiatives (Veleva et al., 2017). They found that many employees are willing to play a role in sustainable projects, but given that employees also have other responsibilities, the key is to engage them. Therefore, implementing an engagement strategy by communication and training is critical (Veleva et al., 2017). Research also indicates that organizations are slow in providing their employees with the opportunities to be involved in green activities and therefor limit the effectiveness of their environmental efforts (Renwick et al., 2012). This could also be the case for a specific type of employee, namely the purchaser.

The role of the purchaser is becoming more complex due to the increasing focus on environmental issues and the circular economy. Purchasers not only have to take cost and quality into account, but also sustainability (Schulze et al., 2019). Several researchers have investigated the competences and skills of the purchaser dealing with this increasing focus on environmental issues. For example, a systematic literature review on the competences of purchasers conducted by Schulze et al. (2019) identified several competences in relation to sustainability; application of tools (use of tools to understand data from suppliers and identify the risks); demand management, which relates to the ability to explore the market opportunities; sustainability compliance, which includes knowledge about sustainability; and commitment to change. Others have described the skill set of the purchasers dealing with the challenging environment as an *entrepreneurial* skillset, and have identified the following skills: making decisions, using interpersonal communication, applying influence, being internally motivated, and finding creative solutions (Giunipero et al., 2005). The future purchaser has been described as someone who is honest and has integrity; someone who takes initiative; someone who has expertise, self-confidence and good leadership skills (Faes et al., 2001). These descriptions of purchasers show several commonalities with the description of an intrapreneur. Demand management (Schulze et al., 2019) and finding creative solutions (Giunipero et al., 2005) could be translated into innovativeness and opportunity recognition. Taking initiative (Faes et al., 2001) and applying influence (Guinepero et al., 2005) could be related to the intrapreneurial dimension of proactiveness. Furthermore, knowledge and motivation have been mentioned as important future purchasing skills for dealing with environmental complexities and are also important aspects of intrapreneurship (Neessen et al., 2019). Research connecting knowledge about intrapreneurship and circular purchasing is scarce. Therefore, we use the intrapreneurship framework that is developed by Neessen et al. (2019) as guideline to structure the role of the purchaser (see Fig. 1). In this framework the relationship between intrapreneurial behavior of an individual is a antecedent of intrapreneurial outcomes on an organizational level. These organizational outcomes are defined as new product/innovation, new business venturing or self-renewal. Circular purchasing can be considered as a

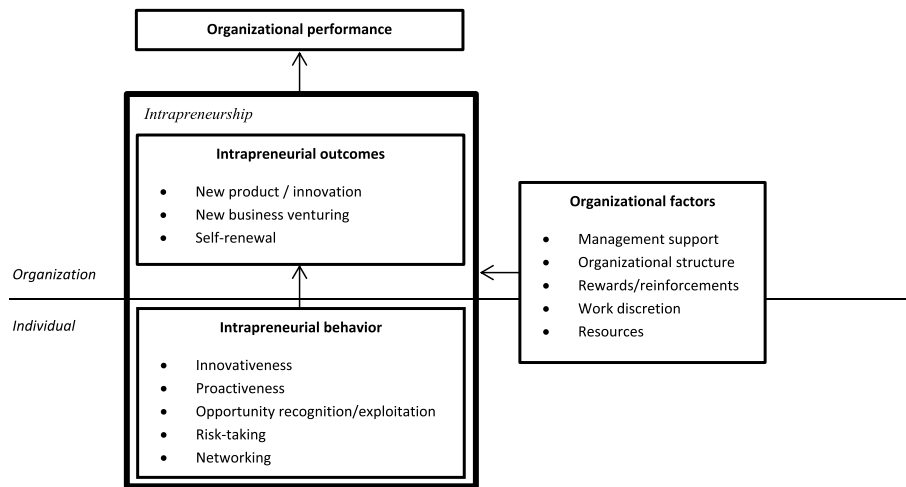


Fig. 1. Framework of intrapreneurship adapted from Neessen et al. (2019).

form of innovation and self-renewal. Hence, we argue that the theory related intrapreneurship could be used in research to the role of the purchaser in the transition towards circular purchasing.

2.2. Organizational factors influencing the purchaser

The ability of a purchaser to actually take action and become successful depends on the situational enablers (Von Rosentiel, 2011). It is therefore important to not only investigate the behaviors and characteristics of the purchaser but also the drivers and constraints, i.e. contextual factors, these individuals experience.

Several drivers of purchasing and supply chain sustainability efforts have been identified in the literature: involvement of top management, government regulation, financial benefits and competitive advantage, ISO certification, customer demands, trust between buyers and suppliers, market performance, awareness, and reputation of the organization (Appolloni et al., 2014; Blome et al., 2013; Giunipero et al., 2012; Large et al., 2013; Walker et al., 2008). As mentioned in the previous paragraph, we use the framework of intrapreneurship (see Fig. 1) to explain the role of the purchaser in relation to circular purchasing. Organizational factors influence the intrapreneur in this framework are management support, organizational structure, rewards/reinforcements, work discretion and resources. Comparing the research about the influence of the context on circular purchasing to the influence of the context on intrapreneurship we see several similarities. Management support has been identified as a factor influencing circular purchasing, but it is also a factor known to influence intrapreneurship. It refers to the willingness of management to facilitate and promote intrapreneurship (Marvel et al., 2007; Sebora et al., 2010). It creates a norm within the organization and encourages employees to undertake intrapreneurial activities.

Other factors mentioned in the framework of intrapreneurship could also be of importance in circular purchasing. For instance, organizational structure refers to the flexibility of the organization. The number of rules and regulations in place can negatively influence intrapreneurship. On the other hand, open channels of communication allow for ideas to be evaluated, selected and implemented (Castrogiovanni et al., 2011; Kuratko and Montagno, 1989; Marvel et al., 2007). Rewards can increase the willingness of employees to participate in innovative projects or, in the case of purchasers, they can increase the willingness to participate in circular projects (Monsen et al., 2010; Urban and Nikolov, 2013). These rewards should be in line with the goals of the organization (Marvel et al., 2007). Work discretion gives the intrapreneur freedom in the decision-making process (Sebora et al., 2010). It is also important for intrapreneurship - and arguably also for circular purchasing - that the

employees receive certain resources that can be used to increase circular activities. These resources mostly refer to time and financial resources (Hornsby et al., 2002; Puech and Durand, 2017). These contextual and organizational factors could thus increase circular purchasing. So summarize, several researcher have identified contextual factors influencing circular purchasing in general, but these factors are not necessarily factors that influence the individual purchaser. On the other hand, there is research that identified contextual factors that influences the individual intrapreneur. Since circular purchasing can be seen as an innovation in purchasing, we argue that the contextual factors influencing the purchaser in the transition towards circular purchasing could be similar as to those influencing the intrapreneur.

3. Methodology

3.1. Research approach

We examined role of the purchaser within several organizations, using a comparative case-study design. This design was chosen to allow for a holistic approach and to investigate the role of the purchaser within the rich context of a real-life organizational setting (Gibbert and Ruigrok, 2010). Moreover, this design allows for theoretical replication by selecting contrasting cases, i.e. organizations that either do or do not demonstrate an intention to engage in circular purchasing (as indicated by management). Case-studies provide a useful way to study the dynamics within an organization (Eisenhardt, 1989).

3.2. Case selection

The organizations ($n = 7$) selected for this study were categorized based on their intention to purchase in a circular manner. We distinguished between organizations that show explicit intention to purchase in a circular manner, for instance by signing a Green Deal, and organizations that do not. If organizations do not show any explicit intention to purchase in a circular manner, it does not mean that they do not engage in circular purchasing at all, but it may indicate a lower level of management commitment to this topic. Intention, as demonstrated by joining the Dutch Green Deal in our case study, signals a certain level of organizational support toward the notion of a circular economy. Research has shown that organizational support or management support is one of the factors that could influence employees - or in this case purchasers - in a positive manner (Hornsby et al., 2002). It increases intrapreneurship and subsequently the sustainable performance of the organization (Marvel et al., 2007). We selected organizations that did and did not show this intention, to make sure that not all our cases were

already primed beforehand towards sustainability. Four organizations were selected from a list of organizations participating in the Green Deal circular purchasing scheme in the Netherlands. The remaining three organizations that participated in this study did not participate in this Green Deal. We contacted the latter three organizations via the network of the Nevi (The Dutch Association for Purchasing Management).

We used a purposive sampling method to select the organizations, based on whether the organization participated in the Green Deal or not. This is a common sampling method in qualitative research and it ensures the use of information rich cases (Etikan et al., 2016). In this research we needed to select cases that were large enough to have purchasers employed, and were dealing with circularity (in different levels of success and intention shown by the management).

3.2.1. Case description

The final sample consists of four non-profit organizations and three profit organizations (Table 1). The size of the organizations ranges between 300 and 70000 employees. These cases were chosen to have variance between non-profit organizations (municipalities, ministries, and ICT supporting organization) and profit organizations (financial organizations and a retailer) in our sample. Even though the goals and organizational outcomes of these organizations differ, we argue that the role of the purchaser and how he/she is positioned within the organization is similar. Our research is about implementing circular purchasing and the dynamics between purchasers and the context and not about the specific products that are purchased.

3.3. Data collection

We conducted multiple in-depth interviews per organization. For each organization, we strived to interview one or more purchasers, his/her direct supervisor and the person responsible for the purchasing policy, enabling us to analyze the role of the purchaser from different points of view. The individuals from each organization were interviewed separately. This ensured that they were not influenced by each other and were free to elaborate on their experiences. The interviews were recorded and transcribed to increase reliability.

The semi-structured interviews were organized in the following way. First, the participants were asked to introduce themselves and elaborate on the position of the purchasing department within the organization. Second, the participants were asked to describe the (circular) purchasing process and also elaborate on the role of the purchasers in this process. An example of a question asked is: 'Please describe your role in the

circular purchasing process'. The information from the second part of the interview was used to answer the first research question by defining the role of the purchaser and the challenges that they face when purchasing in a circular manner. The third part of the interview focused on the context of circular purchasing, in which the participants were primed to think about their own behavior, skills and characteristics, as well as their interactions with their colleagues/supervisor and the policies within the organization. An example of a question asked is: 'Please describe the constraints you experience in order to purchase in a circular manner'. This part allowed us to answer the second research question about the contextual factors influencing the purchaser. The interview ended by asking the interviewees whether they wanted to add something which had not yet been discussed. We did this to ensure that we did not miss important information that could be overseen due to the specific nature of the issue. An example of this type of information was the difficulties experienced in relation to contracting. The participants mentioned that ending existing contracts could sometimes be challenging. On average the interviews lasted 60 min per participant.

In addition to the interviews, we collected documents (if available) related to the organizations, including annual reports, and articles on their websites related to sustainability and purchasing policies. These documents were analyzed to establish whether the organizations already have policies concerning circular/sustainable purchasing. Validity was increased by using multiple data sources (interviews, document analysis) and multiple informants per organization (purchasers, supervisors and policymakers) (Gibbert and Ruigrok, 2010).

3.4. Analysis

We used the software MAXQDA analytics pro 2018 to code the transcripts. The data was analyzed using qualitative case-study analysis (Eisenhardt, 1989). The units of analysis were the cases. This meant that the transcripts and the documents of the different individuals within the organization were analyzed as one case. The starting list of codes was based on the literature review of Neessen et al. (2019). These codes were related to intrapreneurial behavior and characteristics (e.g. innovativeness, proactiveness, risk-taking, networking). The organizational factors that influence intrapreneurs were also included in the initial coding list (e.g. management support and resources). During the iterative process of coding, we added codes in order to capture additional information that could be important in understanding the behavior of purchasers in relation to their environment. The first transcript was coded by two coders. Afterwards the codified data was compared and the two coders discussed the similarities and differences. In this way the coding scheme was further specified, so that a single coder could analyze the remainder of the data.

4. Results

4.1. Classification of perceived implementation success (PIS)

After conducting the interviews, we further categorized the data in terms of which of the seven participating organizations were successful in the implementation of circular purchasing, and which were not (Fig. 2). Existing measurements about the level of environmental benefits of circular projects (Ganzevles et al., 2017) are not applicable to this research. In this research we are researching the success of implementing circular purchasing of an organization as a whole. We focus on the role of the purchaser within the organization and the implementation of circular purchasing. This approach is broader than investigating the level of environmental benefits. It is difficult to objectively judge the level of environmental benefits across all activities of the organization and specific related to the purchasing department. Also the transition towards a circular economy is in its earlier stages. Having implemented a few successful pilots may be considered to be successful, while other facets of the purchasing activities is still not up to par. Thus we used a

Table 1
Description of cases allocated divided by intention.

Circular purchasing	Type of organization	Description organization	Size (number of employees)	Number and type of interviewees
Intention	Financial organization	Financial organization	15000-20000	3 (purchaser, supervisor, policymaker)
	Non-profit	Municipality	250-350	1 (purchaser)
	Financial organization	Financial organization	40000-45000	2 (purchaser, purchaser/supervisor)
	Non-profit	municipality	6500-7000	3 (purchaser, supervisor, policymaker)
No intention	Retailer	Retailer	1500-2500	3 (purchaser, supervisor, policymaker)
	Non-profit	ICT non-profit	200-250	3 (purchaser, purchaser facility, purchaser ICT)
	Non-profit	Ministry	60000-70000	2 (purchaser, supervisor)

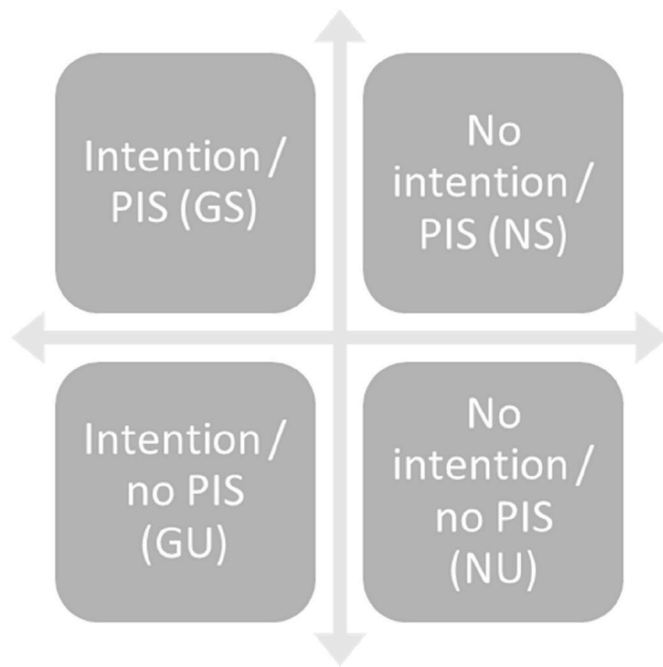


Fig. 2. Quadrants by which the data are categorized (PIS: Perceived implementation success).

measurement to assess the perceived implementation success by asking the interviewees whether they considered the implementation of circular purchasing within their organization to be successful or not. We asked all interviewees within each organization about their assessment of the level of success of the implementation of circular purchasing. After the interviews we allocated each organization to a specific quadrant for further analysis. Using multiple informants (purchasing, supervisor and policymaker) increases the reliability of the assessment.

During the interviews, we asked the interviewees whether they considered their organizations to be successful or unsuccessful in terms of implementing circular purchasing, and how they would describe success. The data was categorized into four quadrants (see Fig. 2) based on a) whether the interviewees considered their organization to be successful or unsuccessful in terms of implementing circular purchasing and b) whether or not the organization demonstrates intention to purchase in a circular manner (a division made during the selection process). The distinction between a successful organization and one that is not successful was not always clear-cut. Three organizations classified their organization as unsuccessful. Within all three organizations, the purchaser, supervisor and policy maker were unanimous about this classification. In relation to another organization, the interviewees were less clear in their classification. They mentioned that they considered themselves to be unsuccessful - not because they do not purchase in a circular manner at all, but because they are unsatisfied with the level of circular purchasing. They felt that the circular purchasing within their company is too ad hoc to be classified as successful.

The organizations that perceived their organization as successful were in general much more positive about circular purchasing than unsuccessful organizations. They also had their doubts about the speed of transition and, although they noted that they are not 100% circular, they still considered themselves to be successful. They stressed the fact that you have to start with certain projects and that 100% circularity is not always possible. In general, their activities are structural in nature; we therefore categorized them in the successful side of the quadrant. "Yes successful, yes, if I see these examples (of circular projects), then I think there is room for improvement, but I do think we are doing okay" (quote GS1). Most organizations defined success as a results-oriented outcome. They had experience of successful circular projects. Two organizations

mentioned that creating awareness is also an outcome of success. In these cases, the actual circular project may not have been 100% successful in all aspects, but if it created a sense of awareness, then they still considered the project to be successful. "I see that more and more stakeholders are working on it (circularity), thus awareness is created" (quote GS2).

4.2. Role, behaviors and characteristics of purchasing professionals

The first research question was: what are the roles, behaviors and characteristics of the purchasing professional in successful implementation of circular purchasing? To answer this question, we asked the purchasers to describe their purchasing process and what their role in this process is. Our data and findings are summarized in Fig. 3 and Fig. 4.

Regarding the role of the purchaser, the purchasers described their role as 'coordinator', 'facilitator' or 'advisor'. This role is similar for the purchasers in the different quadrants shown in Fig. 2. The purchasers differ, however, in how much responsibility they feel for achieving the circular goals of the organization. The purchasers that successfully implement circular purchasing and their organization signed the Green Deal (intention/successful) tend to show initiative towards the budget holders and have processes in place that help the project team (purchaser and budget holder) to discuss the possibilities. The inclusion of circularity in the discussions between the circular purchasers and the budget holders is thus formalized in the organizations in the intention/successful category. One organization achieves this by forming roadmaps together with the budget holders about their sustainability goals for the upcoming year. Another organization includes a section within the plan of action in which the project team is obligated to state their criteria for sustainability/circularity; if they are not planning on purchasing in a circular manner, then they explicitly have to state the reason why not. "Yes, in this case the initiative came from facility management and every time facility management wants to buy something, we check their roadmaps. Which goals are mentioned? And then we must translate these goals into demands and wishes in our purchasing project" (quote GS1). Moreover, the purchasers in the organizations that struggle to purchase circularly, regularly mentioned that the content of the demands and the level of sustainability is the responsibility of the budget holders. They determine the budget and the final say in whether circularity should be included in the list of demands. According to the purchasers, taking the initiative in the transition towards a circular economy is not the responsibility of the purchasers, but it is the responsibility of the budget holders, as illustrated by the following quote: "The question is: What can we do about the fulfilments of company goals, which could possibly be circular? So, circularity is not necessarily one of them? No, not necessarily, unless the budget holder says so" (quote GU2). They saw themselves as having a more passive and advisory role in the process in comparison to the more active role mentioned by purchasers with a high perceived implementation success. The purchasers that are less successful in implementing circular purchasing tend to discuss the policy goals in general. The result is a broader focus and less pressure to take the extra step towards circularity. If circularity is merely one of the many aspects the purchasers have to take into consideration, it inhibits the purchasers in their actions. One organization stated that the pressure of signing up to a Green Deal made sure that the team was forced to include circularity and that the implementation of these projects succeeded. However, when this pressure was not present anymore, the focus was back on meeting the demands stated by the policy goals in general, which may or may not include circularity.

We can conclude that the circular purchasers of organizations with a high PIS are more active within the project team than organizations with a low PIS. Also the organizations with a high implementation success that signed the Green Deal have processes in place to ensure the inclusion of circularity in the projects and the circular purchasers feel a joint responsibility to reach the goals related to the circular economy. In these organizations, the circular purchaser makes sure that circularity is also

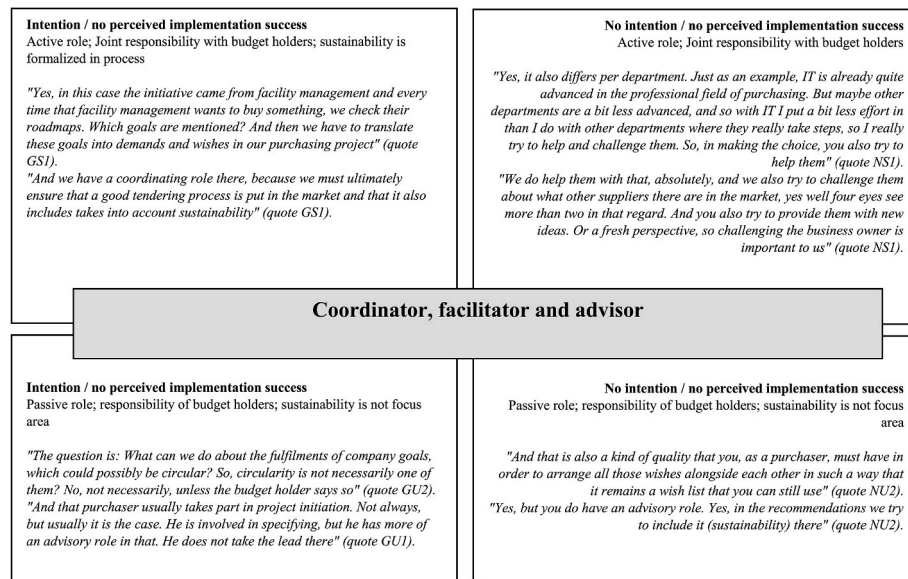


Fig. 3. Role of the circular purchasing professional.

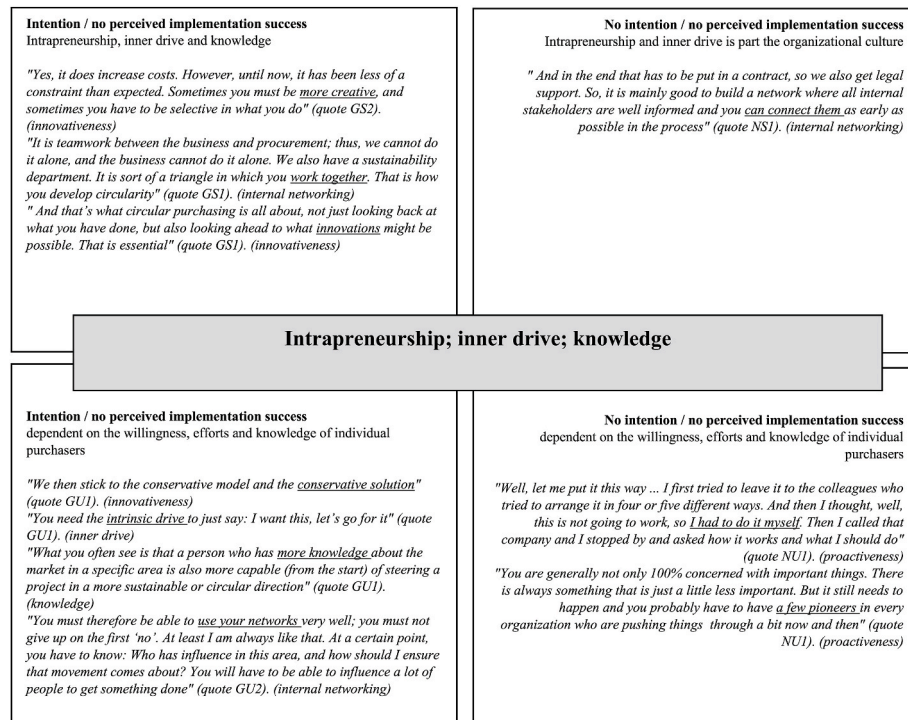


Fig. 4. Behaviors and characteristics of the circular purchasing professional.

included in the list of demands before a call goes out to suppliers.

Proposition 1. Organizations that are successful in implementing circular purchasing and show intention by signing a Green Deal have processes in place to ensure that circularity is taken into consideration in every purchasing project.

Proposition 2. The purchasers in organizations that are successful in implementing circular purchasing are more active and feel a joint responsibility with the budget holders to reach company goals concerning circularity as compared to more passive purchasers in organization that are less successful in implementing circular purchasing.

Concerning the behaviors and characteristics of the purchasers, the

following aspects were mentioned. First, the analysis shows that intrapreneurial behaviors – such as innovativeness, proactiveness, internal and external networking and opportunity recognition – were used to describe the circular purchasers (see Fig. 4). For instance, innovativeness is needed to find different solutions when purchasers are faced with financial constraints. One purchaser who struggled with circular purchasing said: "We would like to do more in terms of circular purchasing, but we often see that the market is not ready for our size [of the organization] or that there are financial constraints. Then we stick to the conservative model and the conservative solution" (quote GU1). In contrast, a purchaser that was successful in implementing circular purchasing stated that: "Yes, it does increase costs. However, until now, it has been less of a constraint than

expected. Sometimes you must be more creative, and sometimes you have to be selective in what you do" (quote GS2).

Proactiveness is a behavior that is evident when purchasers discuss ideas within the project team. In general, purchasers actively start the discussion about sustainability issues related to the purchased good, and, if the budget holders are not that sustainably minded, they need to proactively convince the project team to include circularity. They coordinate the team and the input from different actors. They organize information sessions internally and externally to inform others about the circular economy (internal and external networking). They have to invest much time and effort in convincing others to include circularity: "You will always see this, and people must take the lead in getting colleagues to join" (quote GS1). Taking the initiative and convincing others to be circular-minded are important purchasing behaviors related to proactiveness.

Internal networking is also crucial for circular purchasers. As already mentioned, they are not the ones that have control over the budget. They facilitate and advise the people that need the products. As one purchaser explained: "It is teamwork between the business and procurement; thus we cannot do it alone, and the business cannot do it alone. We also have a sustainability department. It is sort of a triangle in which you work together. That is how you develop circularity" (quote GS1). Circular purchasers collaborate with colleagues from other departments; they discuss the options and they get the right people together.

In addition to internal networking, external networking is also an important behavior for a circular purchaser. Circular purchasing is a complex process and purchasers and budget holders are not always up to speed with the newest innovations and possibilities in the market. Using their external network to scan the market was mentioned in all cases of our research. Using the network to organize inspirational sessions in order to create awareness about sustainability was also mentioned.

Purchasers from all quadrants showed intrapreneurial behaviors at some point. The difference between perceived implementation success and no perceived implementation success lays in the willingness of the individual purchaser to put effort into the circular projects and how much energy they place into convincing stakeholders, which signals the inner drive of the individual purchaser towards sustainability and the knowledge he/she has about the circular economy.

Second, besides the behavioral aspects of the circular purchaser, we would like to draw attention to the importance of the motivation or the inner drive of the purchaser. He/she needs to be convinced of the importance of the circular economy to take the effort needed for the transition. Examples of statements include: "You have to be convinced that you need to act in a sustainable way, otherwise things will go south with our planet" (quote GU2). "You need the intrinsic drive to just say: I want this, let's go for it" (quote GU1). "If it wouldn't interest me, then it would not happen and it would not be a priority to change the mind-set next year" (quote NU1). Individual purchasers within the category low PIS also mentioned having a certain motivation to become sustainable. They did work on a few circular initiatives. These initiatives were (to a point) successful, but these actions remained sporadic and were not structural in nature. One purchaser mentioned a rather large building project that was successfully executed. However, after this project was finished, no awareness was given to the project and all motivation to start a new project was lost. So even though the project itself was successful, the continuous flow of energy was lost due to demotivating factors: "You work on a project, that ended up okay, but then you have to focus on the fact that you felt that it worked out well, so it actually doesn't motivate you. You have to work on it. And of course you do it from your own conviction, but well" (quote GU1).

Third, an important characteristic of a circular purchaser dealing with the complexity of the circular economy is knowledge. Knowledge helps the circular purchaser in advising the budget holders, but also in convincing others to consider certain alternatives. Knowledge about the life cycles and the costs in the long term is also useful in terms of getting the budget approved: "If people do not have enough knowledge about a

subject, about sustainability, about circularity, then it is difficult to bring the subject to the attention of the stakeholders" (quote GS1). "What you often see is that a person who has more knowledge about the market in a specific area is also more capable (from the start) of steering a project in a more sustainable or circular direction towards a project" (quote GU1).

Proposition 3. *Intrapreneurial behavior, in combination with a sustainability-based motivation and knowledge about the circular economy, is a good signal of success in implementing circular purchasing.*

Proposition 4. *Organizations that perceive implementation success have a structural way of initiating purchasing projects, whereas projects in organizations without implementation success are dependent on the willingness of an individual purchaser to pursue one-time projects.*

We can conclude that successful circular purchasers take the initiative and share responsibility (with the budget holders) for achieving the sustainability goals of the organization. Circular purchasers demonstrate intrapreneurial behaviors. Besides intrapreneurship, the purchasers' motivation to become sustainable and acquiring the knowledge to do so are also important. We conclude that organizations that are successful in implementing circular purchasing and show intention to transition towards a circular economy have processes in place that ensure that circularity is taken into consideration in every purchasing project. Organizations that are less successful in implementing circular purchasing do not have these processes in place and depend on chance and on the individual purchasers who are willing to invest extra energy into convincing the project team to include circularity in specific, sometimes on-time, projects.

4.3. Contextual factors: drivers and constraints

The second research question was: What contextual factors determine the extent to which purchasers impact the perceived success of the implementation of circular purchasing activities? To answer this question, we analyzed the drivers and constraints experienced by the individual purchasers.

4.3.1. Drivers

From the analysis of the transcripts, several drivers of circular purchasing can be identified. They can be divided into drivers related to creating a general direction or vision of the organization and the purchasing department and drivers related to making sense of the complexity of circular purchasing and the options available (Fig. 5).

4.3.1.1. Creating direction. A driver that was mentioned during the interviews was sharing success, as observed in organizations with a high perceived implementation success. Sharing the good examples and the successes gives the circular purchaser the feeling of being appreciated. This creates a flow of energy within the department and it also gives other purchasers practical ideas on how to tackle specific issues regarding circularity: "And also sharing our successes. If someone made something nice happen, then we share this" (quote GS2). These successes do not necessarily have to be related to the actual work; they could also include the sustainability-related actions of employees in their private lives, for instance the success of building a sustainable house was shared on an internal social network: "Also, privately, a colleague told us about a self-sufficient house that he built" (quote NS1). Not sharing successes can even create a feeling of disappointment: "The people that were involved, were very proud in the interview and the news item. That is really cool and gives a lot of energy to start the next project. We do communicate poorly about this; That is a big irritation for me" (quote GU1). Sharing successes creates a certain awareness about circular purchasing and minimize barriers of uncertainty. All organizations (high or low PIS) mentioned that creating awareness is a prerequisite to transitioning towards circular purchasing. The interviewees mentioned that not only the purchasers should be aware about the importance of sustainability,

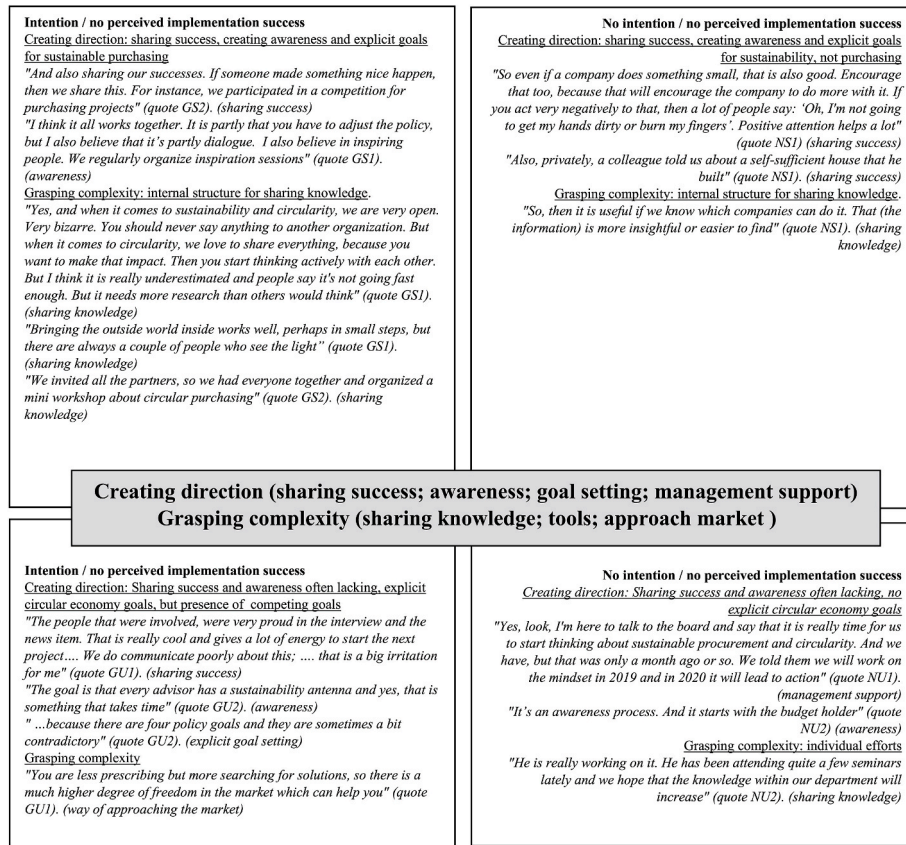


Fig. 5. Drivers of circular purchasing.

but also the budget holders, management and other employees. The organizations that struggle to implement circular purchasing mentioned that this awareness is often lacking. It takes time. *"The goal is that every advisor has a sustainability antenna and yes, that is something that takes time"* (quote GU2). *"We are the generation that has to start. So, awareness internally. That has been very important"* (quote GS2). Creating awareness costs time but it creates a support base for sustainable initiatives.

Another driver can be labelled as explicit goal setting. This involves setting goals so that the circular purchasers can use these goals in discussions about the demands. As mentioned before, the purchasers who can explicitly communicate these goals to the budget holders, are more likely to convince the budget holders to include sustainability in comparison to the purchasers who do not communicate these goals. However, these goals should also be supported by the management. The organizations within the quadrant *no PIS/no intention* did not have circularity or sustainability as one of the purchasing goals. The organizations that fall into the category *no PIS/intention* did mention sustainability in their goals, but sustainability was one of the multiple goals and the importance of sustainability in comparison to the other goals was less obvious to the purchasers and budget holders. This leads to competing goals for the purchasers, as explained by GU2: *"... because there are four policy goals and they are sometimes a bit contradictory"* (quote GU2). The organizations that are successful in implementing circularity explicitly show the importance of sustainability and have roadmaps or other tools in place to use when discussing the wishes of the project leaders/budget holders.

4.3.1.2. Grasping complexity. It is important to note that all of the organizations struggle with the complexity of circular purchasing. The complexity of circular purchasing involves around the concept of circular economy and how to use it in practice. Most of the interviewees mentioned that they are searching for tools to help them find circular

options and assess the practicality and value of the options. It is interesting to note the change in the way the circular purchasers communicate the demands to the market. It is important to state the demands in an open way, so that innovative circular ideas actually fit the demands. One respondent stated: *"You are less prescribing but more searching for a solution, so there is a much higher degree of freedom in the market which can help you"* (quote GU1).

Organizations that are successful in implementing circular purchasing appear to have an internal social structure in place in which they regularly discuss circularity. Who takes part in these structured discussions differs among the organizations, but the goal is to discuss sustainability and any related issues that may arise. Managers from different departments take part in these meetings. They act as ambassadors within the organization. These structures facilitate sharing knowledge internally, but knowledge can also be shared by inviting external speakers to talk about their initiatives or products. This creates knowledge about the market and about the different possibilities, but it also creates awareness among the purchasers. *"Bringing the outside world inside works well, perhaps in small steps, but there are always a couple of people who see the light"* (quote GS1). Some even organized a mini workshop about circular purchasing: *"We invited all the partners, so we had everyone together and organized a mini workshop about circular purchasing"* (quote GS2). Organizations that struggle to implement circular purchasing depend on the motivated individual purchasers to bring in knowledge about circular economy, i.e. there were no specific processes in place to share knowledge. *"He is really working on it. He has been attending quite a few seminars lately and we hope that the knowledge within our department will increase"* (quote NU2). These results lead to the following proposition:

Proposition 5. *The presence of drivers (creating a sense of direction in the organization and grasping the complexity of the circular economy) increase the likelihood of successful implementation of circular*

purchasing.

In general, we can conclude that most of the drivers mentioned fit into two broad categories. On the one hand, creating a sense of direction by sharing success, creating awareness and setting purchasing goals that are in line with the organizational goals. On the other hand, grasping the complexity of the concept of circular purchasing is stimulated by sharing knowledge, having the tools to assess and monitor circular activities and knowing how to approach the market in an open way in order to increase the number of innovative and circular suggestions play an important role. The successful implementation differ from unsuccessful implementation in the presence of these drivers to help purchasers cope with the complexity of the circular economy and to give purchasers a sense of direction of the organization.

4.3.2. Constraints

When examining the data, several constraints can be identified, and these can be divided into five categories: market constraints, organizational constraints, legal constraints, constraints related to the concept of the circular economy, and cultural constraints (Fig. 6).

4.3.2.1. Organizational constraints. All organizations in our sample

struggle with the costly budgets that seem to go hand in hand with circular projects. Budget seems to be the most important constricting factor. “Yes, procurement wants it (circularity), but then you’ll see that budget is often a determinant” (quote GU1). The organizations with a high PIS seem to put less emphasis on the budget even though they experience it as a constraint. Our interviewees mentioned that they have a budget limit, and that they have to find a solution within the budget. They have to convince the budget holder why a specific option is better - even though in the short term it may be more expensive - or they try to find the right balance between being sustainable and still staying within budget: “Sometimes it is a challenge. You have to say that it will cost a bit more, but then we get a lot more than we asked for. Sometimes it works, sometimes it doesn’t” (quote GS1). “And then you have to consider the costs versus what it will add in terms of sustainability” (quote NS1).

In addition to budget limitations, management support is also an important constraint. Especially in organizations that are not successful in implementing circular purchasing, interviewees emphasize the lack of management support and the lack of concrete goals or the presence of conflicting goals. One purchaser said: “The board does not stimulate it. They don’t stop it either. I think they will support it, but they are not really aware about it” (quote NU1). Using the document analysis, we checked if the perceived (lack of) management support expressed by the

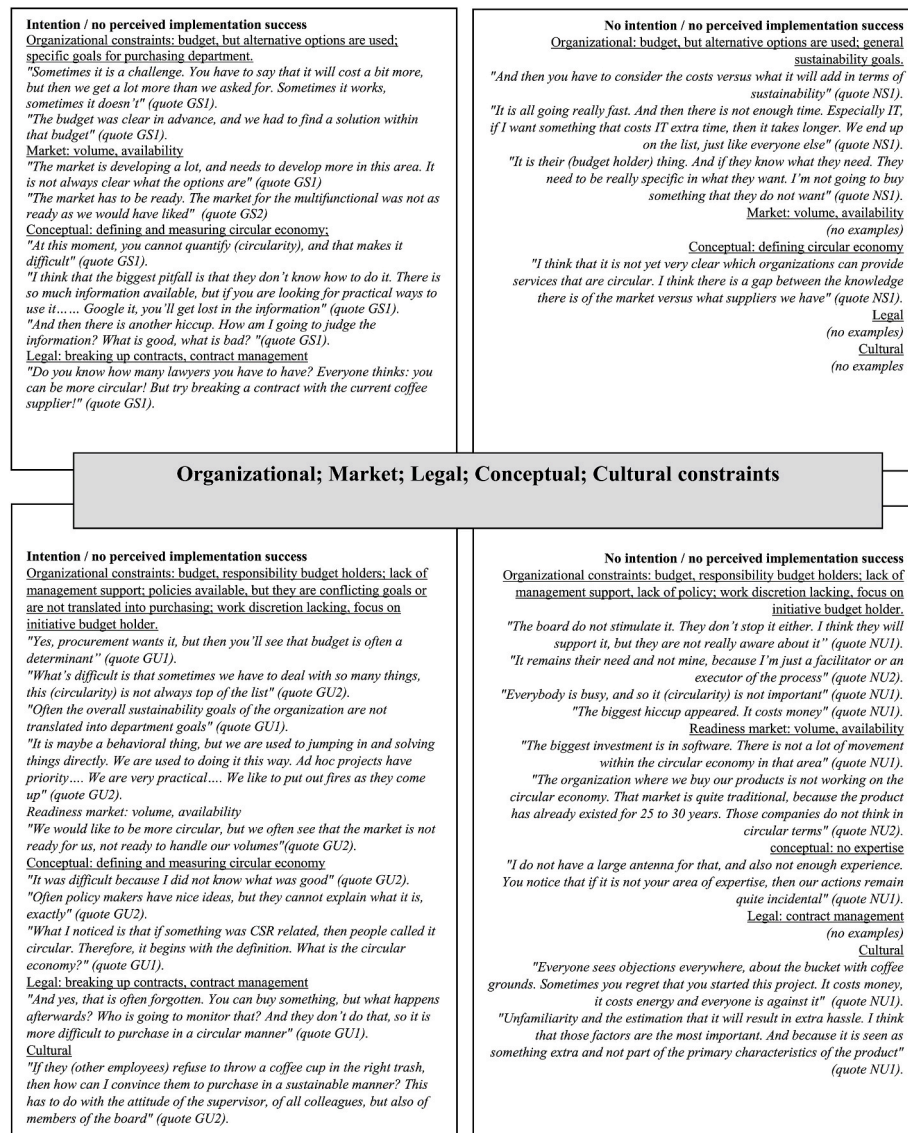


Fig. 6. Constraints of circular purchasing.

interviewee was also reflected in the official documents of the organizations. Purchasers in organizations in the *no PIS/no intention* category mentioned that there is no policy about circular purchasing. This was supported in the document analysis (Table 2). The organizations that were not successful in implementing circular purchasing, but did have the explicit intention to purchase in a circular manner (*no PIS/intention*), did have some policies related to sustainability. However, the interviewees mentioned that these policies often describe conflicting goals “*What’s difficult is that sometimes we have to deal with so many things, this (circularity) is not always top of the list*” (quote GU2). Or they mentioned that there was no translation of the general vision of the organization into explicit goals and targets for the purchasing unit. In one case (GU1), there was an official document from the management stating the importance of circular economy, but the purchasers did not feel that this policy was executed or communicated within the internal organization. “*Often the overall sustainability goals of the organization are not translated into department goals*” (quote GU1). “*If there is a policy, then he would do something with it, but if there is not a policy, then why would he, except maybe if he wants to do something, but there is no focus*” (quote GU1). The organizations with PIS that participated in the Green Deal had specific policies in place regarding sustainable or circular purchasing. The purchasers confirmed this in the interviews. One organization that was successful in implementing circular purchasing did not participate in the Green Deal and yet had specific overall sustainability goals, but these were not specified to the purchasing department. While sustainability is generally accepted within this organization, the initiatives that have been set up have usually been accepted without having to spend too much energy in convincing others to participate. It could thus be concluded that organizations that show intention towards circular purchasing also tend to explicitly mention circularity in their documents. However, this does not necessarily mean that these policies are also ingrained in the organizational practices.

Besides budget limitations and management support, work discretion related to circularity was limited for all purchasers, because they have to operate within the constraint that they are not the budget holders of the projects. The amount of discretion experienced (in relation to circularity) was therefore limited. The importance that individuals attached to this limitation was expressed differently between all organizations. Those in organizations with no implementation success often mentioned that they did not have the power to approve decisions: “*It remains their need and not mine, because I’m just a facilitator or an executor of the process*” (quote NU2). Due to the fact that the decision of the budget holder is final, the (limited) time purchasers receive to execute the purchasing process is also seen as a constraint. This is something that purchasers of all organizations (successful implementation or not) experienced. Either the purchasers are notified too late to be

able to conduct a proper market search or look for circular alternatives or they have to sort out other issues arising from other people’s (e.g. budget holders) short-term vision. “*It is maybe a behavioral thing, but we are used to jumping in and solving things directly. We are used to doing it this way. Ad hoc projects have priority We are very practical We like to put out fires as they come up*” (quote GU2).

4.3.2.2. Market constraints. Readiness of the market was mentioned by most organizations as a constraint. Interviewees stated that the market can either not handle the volume of the call or does not have circular solutions for the products: “*We would like to be more circular, but we often see that the market is not ready for us, not ready to handle our volumes.*” (quote GU2). Moreover, some products are off limits when it comes to changing parts of the product. The producers of these products do not allow for changes to be made or for parts to be reused or placed in a different supply chain. The organizations that are less successful in implementing circular purchasing mentioned the readiness of the market as a constraint more often than the other organizations. It was unclear during analysis if this can be attributed to a lack of awareness of the purchasers about circular options within their field, or whether the market is indeed not ready.

4.3.2.3. Conceptual constraints. Issues regarding readiness of the market may be related to another constraint, namely knowledge about and the complexity of circular purchasing. Almost all organizations, mostly the ones that have the intention to purchase in a circular manner, struggle with the concept of circular purchasing. They struggle to define circularity and to make the distinction between circularity and sustainability. More often than not, these concepts are used interchangeably. The organizations that participate in the Green Deal struggle with this complexity more than other organizations. This may be because they know that the circular economy and sustainability are not quite the same concept and because they have a better understanding of the complexity of the issue. However, all organizations mentioned this complexity as a constraint. It is not only the definition of (and the knowledge about) the circular economy that is an issue, but also the measurability of the level of circularity: “*At this moment, you cannot quantify (circularity), and that makes it difficult*” (quote GS1).

4.3.2.4. Legal constraints. Legal constraints were mentioned across the different types of cases in our quadrants. Legal constraints include, for instance, the difficulty of breaking a contract with the current supplier. If you want to experiment with a new circular project, then the main supplier may insist that you are obliged to honor the contract and buy the product through them. You are not even allowed to test an alternative product within a smaller unit of the organization: “*Do you know*

Table 2
Results of the document analysis.

Circular purchasing	Abbreviations	Documents available for analysis	Results, including example statements.
Intention/PIS	GS1	Website (including information on sustainable purchasing), year report 2018	Strategy is stated clearly on website, including reference to the circular economy. “ <i>We adapted the strategy and focus heavily on sustainability. We focus on the circular economy</i> ” Sustainable purchasing is also mentioned on the website.
	GS2	Purchasing policy 2019	Specifically mentions circular purchasing goals in purchasing policy: “ <i>For all purchasing projects, the possibilities regarding circular purchasing will be investigated</i> ”.
No intention/PIS	NS1	Website (including sustainability related articles)	No specific mention of the circular economy, but social responsibility and specific sustainability goals (organization-wide) are mentioned on the website. No specific policy on (circular) purchasing present.
Intention/no PIS	GU1	General sustainability policy (not specifically related to purchasing)	The circular economy is mentioned in policy regarding external services and internal processes: “ <i>We try to use renewable materials as much as possible and formulate contracts according to the circular economy principles</i> ”
	GU2	Purchasing policy 2017, action plan for socially responsible purchasing.	The circular economy is explicitly mentioned in the action plan “the organization works on the circular economy: “ <i>We try to reduce material use, and to focus on reused and renewable materials</i> ”
No intention/no PIS	NU1	Purchasing policy	The policy did not focus on the circular economy. Sustainability was only mentioned once, however this was not further elaborated on: “ <i>create space for innovation and sustainability</i> ”.
	NU2	No policy was made available.	No policy was made available.

how many lawyers you have to have? Everyone thinks: you can be more circular! But try breaking a contract with the current coffee supplier!" (quote GS1). Another purchaser mentioned the difficulties in organizing proper contract management within circular projects. After the life cycle of a product, that product may have to be returned to the original supplier. But after a few years, it may be difficult to have an overview of who that supplier was, or to make sure the organizations are still upholding their end of the contract. It entails a level of trust from both ends: "And yes, that is often forgotten. You can buy something, but what happens afterwards? Who is going to monitor that? And they don't do that, so it is more difficult to purchase in a circular manner" (quote GU1).

4.3.2.5. Cultural constraints. The organizations that were not successful in implementing their circular purchasing (regardless of whether they showed initial intention by participating in a Green Deal), mentioned that the culture (or the awareness of the importance of a circular economy or sustainability in general) is not a top priority. One organization tried to implement a new coffee machine and agreed that the coffee grounds would be collected and used to grow mushrooms. However, the implementation of this collection method did not go smoothly: "Everyone sees objections everywhere, about the bucket with coffee grounds. Sometimes you regret that you started this project. It costs money, it costs energy and everyone is against it. (quote NU1)" In addition to the struggles to implement a new product, it may also be difficult (and frustrating) to convince others to be sustainable when purchasers see the lack of interest or uncooperativeness from colleagues in other sustainability issues: "If they (other employees) refuse to throw a coffee cup in the right trash, then how can I convince them to purchase in a sustainable manner? This has to do with the attitude of the supervisor, of all colleagues, but also of members of the board." (quote GU2). This constraint was less prominent in organizations that were successful in implementing circular purchasing. However, it is unclear if this constraint precedes successfulness or whether the successful implementation of circular purchasing within these organizations changed the awareness and the culture within these organizations. Based on these results we propose:

Proposition 6. *The presence of circular purchasing constraints (market, organizational, legal, conceptual and cultural) lowers the likelihood of successful implementation of circular purchasing.*

5. Discussion

5.1. Theoretical contribution

The study focused on the role, behavior and characteristics of the purchaser within the circular purchasing process, and the contextual that influence the circular purchaser. We conclude that circular purchasers take the initiative in implementing and the responsibility for achieving the sustainability goals of the organization and are able to, if needed, proactively convince the budget holders about the need for a circular economy. Circular purchasers need to network and connect several actors (internally and externally) in order to coordinate the purchasing process and, together with the team, they seek innovative ways to overcome constraints such as budgetary limitations. The results of this research are summarized in the conceptual model visualized in Fig. 7. Based on these results there are several theoretical contribution.

Firstly, when examining the role of the purchaser in circular purchasing - and the behaviors and characteristics of these purchasers - we find that in general, the role of the purchasers was described as a coordinator/facilitator and as an advisor. This is in line with the descriptions of the purchasing role of the strategic purchasing type provided by Knight et al. (2014). Knight et al. (2014) also described two other purchasing types (tactical and routine). We did not find evidence of the latter two types in our case study, which may imply that circular purchasing is mostly important for the strategically oriented purchasers in comparison with the tactical and operational purchasers. Research is

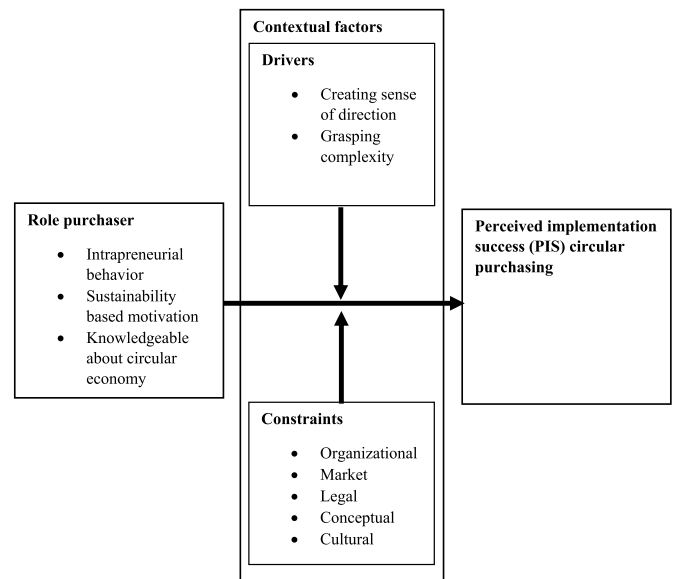


Fig. 7. Conceptual model role of purchasers and contextual factors in perceived implementation success of circular purchasing (PIS).

needed to investigate the relationship between the type of purchasers, the level of their position in their organization, and their success in implementing circular purchasing.

Secondly, when examining the way in which the purchasers go about executing their role, we found clear indicators that describe circular purchasers. These include being intrapreneurial, green-oriented, motivated and knowledgeable about the circular economy. This research contributes to our knowledge about how intrapreneurship can increase the perceived implementation success of circular activities in an organization. Based on the theoretical framework of intrapreneurship of Neessen et al. (2019) it can be argued that intrapreneurship of the purchasers is important for circular purchasing (Neessen et al., 2019; Fellnhöfer et al., 2016). Even though in research the combination of the literature about intrapreneurship and supply chain management has been scarce, the link between the purchasing function and intrapreneurship has been made before in the scientific literature. Researchers have described the supply chain skill set needed now and in the future as an entrepreneurial skill set in which flexibility to meet the challenges for the changing environment is important. The skills needed include making decisions, using interpersonal communication, applying influence, being internally motivated and finding creative solutions (Giunipero et al., 2005). Other researchers have described several traits important for the future purchaser, namely integrity and honesty, initiative, technical expertise, self-confidence and leadership (Faes et al., 2001). Of these traits, taking initiative (proactiveness) and technical expertise were found to be related to circular purchasers in the case study. These aspects of intrapreneurship are also described in the framework of intrapreneurship (Neessen et al., 2019). In the literature, the behaviors proactiveness, innovativeness and risk-taking are usually mentioned as being the three basic behaviors of an intrapreneur (Morian et al., 2014; Yariv and Galit, 2017). These behaviors were visible in our sample. Only the risk-taking behavioral dimension of intrapreneurship was less prominent in purchasers. This may be related to the origins of the purchaser function. Purchasers have a supportive role within organizations. They are not the ones that decide what products are needed, but rather they support the budget holders. However, the level of proactiveness may influence the extent to which their recommendations to the budget holder will actually result in circular activities. But ultimately, the risk of failure lies with the budget holders than with the purchasers. This may explain why risk-taking behaviors were not represented in the cases included in this study. Giunipero et al.

(2005) described managing risk as one of the skills important to purchasers. However, as explained before, we did not find evidence for this in the cases presented in the current research.

Thirdly, in addition to the intrapreneurial behaviors of circular purchasers, the data also revealed the importance of the motivation of the circular purchasers and their knowledge about the circular economy. Taking an active approach towards the budget holders costs energy and adds a level of difficulty to purchasers' jobs. It is therefore important for the circular purchaser to have a clear vision of why he/she should invest this energy. A purchaser who is highly motivated to invest in sustainability and in a circular economy is willing to invest extra energy into these projects. The circular economy is a complex concept. The circular purchasers need to have knowledge about the concept and about the market, so that they know what circular options are available. Having technical expertise is mentioned as a characteristic that will become important for purchasers (Faes et al., 2001).

Fourthly, one of the results of this study is that circular purchasers act as intrapreneurs. It is thus reasonable to argue that the contextual factors experienced by circular purchasers may be in line with the organizational factors that influence intrapreneurship. Based on the literature, we theorized that circular purchasing is prominent in organizations that support intrapreneurship and the intrapreneurial behaviors of the purchasers. Management support and resources (time and money) have been identified as factors inhibiting or stimulating intrapreneurship (Hornsby et al., 2002; Seborá et al., 2010; Marvel et al., 2007; Puech and Durand, 2017). These factors also influence circular purchasing in our case-study. Resources have also been mentioned as one of the organizational constraints to circular purchasing. Circularity is often seen as costly and scanning the market and creating awareness within organizations costs time. However, any influence of boundaries and work discretion (Hornsby et al., 2002) were not evident in our data. Although purchasers mentioned having autonomy in how they perform their duties, they do not have the freedom to make decisions about the products and the budget. Their work discretion or autonomy is therefore limited. The factor rewards and reinforcements has been identified as a factor that influences the intrapreneur (De Clercq et al., 2011; Hornsby et al., 2002). This factor somewhat resembles the driving aspect of sharing successes, however financial rewards and other reinforcements were not mentioned as being important in the transition towards circular purchasing by the purchasers in this study. Future research could focus on the drivers and constraints experienced by the individual intrapreneur as compared to the drivers and constraints experience by the circular purchaser.

Fifthly, existing research has identified several drivers of purchasing and supply chain sustainability efforts, e.g. involvement of top management, government regulation, financial benefits and competitive advantage, ISO certification, customer demands, trust between buyers and suppliers, market performance, awareness, and reputation of the organization (Appolloni et al., 2014; Blome et al., 2013; Giunipero et al., 2012; Large et al., 2013; Walker et al., 2008). These drivers are not completely in line with the drivers (creating direction, grasping complexity) we found in our study. This could be due to the fact that our study focused on the individual purchasers and the drivers that influence them directly, while for instance Giunipero et al. (2012) took the executives' point of view. Drivers such as government regulation, financial benefits and competitive advantage, ISO certification, customer demands and reputation may be related to the level of management support, but they did not have a direct effect on the purchasers in our case study. However, the level of involvement of top management alongside awareness of the issues does influence the amount of management support the purchasers experience. This support can be expressed in relation to policies, activities designed to increase awareness, and the degree to which successes are shared. Giunipero et al. (2012) described three barriers to sustainable supply chain efforts, namely lack of consensus at the CEO level, costs of sustainability, and a misalignment of short-term and long-term goals. Other researchers have identified

further barriers such as low demand, financial constraints and regulation or industry specific barriers (Appolloni et al., 2014; Tumpa et al., 2019; Walker et al., 2008). These barriers were also relevant to the purchasers in this study and are mostly related to the category organizational constraints. Future research could focus on the drivers and constraints experienced by the individual employees as compared to the drivers and constraints at an organizational level. This would also help clarify the reasons why some organizations that show intention towards a transition to a circular economy are not able to be successful in this endeavor.

5.2. Practical implications

There are also several practical implications of this research. Based on our results, we pose that in order for organizations to be successful in circular purchasing they should encourage purchasers to become intrapreneurial. Several drivers and constraints found in this study are also drivers and constraints of intrapreneurship in general. Management support (one of the organizational constraints and drivers) was found to be the most prominent factor. Organizations could encourage intrapreneurship in circular purchasers by showing support for a circular economy, for example by formulating policies and creating awareness about these policies and the importance of the circular economy. This would help the circular purchasers to include circularity in the proposals and in conversations with the budget holders. Providing circular purchasers with a (indirect) budget, and the necessary time and tools to search for opportunities within the market would also help.

5.3. Limitations

This research has several limitations. Even though the European Commission has provided a clear definition of the circular economy, in which it is stated that the value of the materials should be maintained as much as possible and waste should be minimized (European Commission, 2015), translating this into a practical and workable system remains a challenge. Organizations struggle to see what circularity means for their purchasing activities and what makes circular purchasing distinct from sustainable purchasing. This constraint was obvious during the interviews.

During the interviews we asked the participant to evaluate the successfulness of the implementation of circular purchasing. This was used as a measurement for the dependent variable 'perceived implementation success'. The potential bias due to the subjective interpretation of the participants was minimized by using the answers of multiple informants for each case. Some organizations were very critical about their level of circular purchasing and classified themselves as unsuccessful, but that did not mean that there was not a single circular purchasing project within these organizations. Future research could investigate possible alternative unbiased measurements to measure implementation success.

Another limitation is that the organizations were, in general, quite large and established. This has implications for the generalizability of the results. The constraints faced by large organizations may be different to those relevant to smaller organizations. Furthermore, large organizations may be less flexible in terms of changing their business model (meaning that they have to find circular solutions within these constraints in comparison to start-ups that may have more options in adapting their way of working to fit the concept of the circular economy).

5.4. Overall conclusion

The aim of this study was to investigate the role, behavior and characteristics of the purchaser in circular purchasing and to establish which contextual factors influence circular purchasing. Based on our findings, we made several propositions. To summarize, the circular purchaser can best be described as intrapreneurial, sustainability-

mindful and knowledgeable about the circular economy. Purchasers who share responsibility with budget holders and organizations that have processes in place to ensure the inclusion of circularity in their purchasing projects are more successful in circular purchasing than other organizations. In our case study, we identified the drivers (creating sense of direction and grasping the complexity of circular economy) and the market, organizational, legal, conceptual and cultural constraints associated with circular purchasing.

Although this research did identify the characteristics of a circular purchaser and the drivers and constraints he/she faces, the transition towards circular purchasing remains complex. Changing one or two aspects within an organization does not necessarily result in circularity. Successful organizations also experience certain barriers and not every purchaser has the ability to deal with these difficulties.

CRedit author statement

Petra C. M. Neessen: Conceptualization, Methodology, Software, Investigation, Formal analysis, Writing original draft

Jeroen P. de Jong: Supervision, Writing - Review & Editing

Marjolein C.J. Caniëls: Supervision, Writing - Review & Editing

Bart Vos: Supervision, Writing - Review & Editing

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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